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DEVELOPING STUDENTS' INDEPENDENT THINKING IN GENERAL SECONDARY EDUCATION

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Abstract

The development of independent thinking is one of the fundamental objectives of contemporary general secondary education. In a rapidly changing world, students need more than the ability to acquire and reproduce knowledge; they must also be capable of analyzing information, evaluating different perspectives, solving problems, and making informed decisions. This article examines the pedagogical foundations and practical approaches to developing students' independent thinking in general secondary schools. Particular attention is given to the relationship between independent thinking, critical thinking, creativity, and self-directed learning. The study also considers the contribution of student-centered instruction, problem-based learning, collaborative activities, and reflective practices to students' intellectual development. Furthermore, the article discusses the teacher's role in establishing an educational environment that encourages curiosity, initiative, and intellectual independence. The findings of the theoretical analysis provide pedagogical recommendations for improving classroom practices and promoting students' cognitive development.

Keywords

independent thinking, general secondary education, critical thinking, cognitive development, student-centered learning, problem-based learning, pedagogical strategies, intellectual independence.

Introduction

The development of independent thinking has become an increasingly important objective of modern education. Contemporary society is characterized by rapid technological progress, growing access to information, and constantly changing social and professional requirements. Under these circumstances, the ability to memorize educational information is no longer sufficient for successful personal and academic development. Students must learn to understand information,

distinguish facts from opinions, evaluate evidence, and develop their own conclusions. General secondary education plays a particularly significant role in establishing these intellectual abilities. During school years, learners gradually develop their cognitive potential, personal interests, communication skills, and attitudes toward knowledge. Therefore, educational institutions should provide not only subject-related knowledge but also opportunities for independent intellectual activity. Independent thinking can be understood as an individual's ability to analyze situations, formulate questions, consider alternative explanations, and make decisions based on personal reasoning. It does not mean rejecting teachers' explanations or established scientific knowledge. Rather, it involves the conscious understanding and evaluation of information instead of accepting it without reflection.

In this context, the central pedagogical challenge is to transform students from passive recipients of information into active participants in the learning process. This transformation requires appropriate teaching methods, supportive classroom relationships, and educational activities that stimulate intellectual curiosity.

The purpose of this article is to examine the theoretical foundations of developing independent thinking and identify effective pedagogical approaches that can be implemented in general secondary schools.

Theoretical Foundations of Independent Thinking

Independent thinking is closely associated with several important concepts in educational psychology and pedagogy, including critical thinking, creative thinking, problem-solving, and metacognition.

John Dewey emphasized the importance of reflective thinking in education. In his view, meaningful learning develops when individuals actively examine problems, consider evidence, and reflect on their experiences. His approach suggests that students should not simply receive ready-made information but should participate in the process of discovering and understanding knowledge.

Jean Piaget's theory of cognitive development also provides a valuable perspective. According to his approach, children actively construct knowledge

through interaction with their environment. Their understanding develops as they encounter new experiences and reorganize existing mental structures. This perspective highlights the importance of learning activities that require students to explore, compare, and interpret information independently.

Lev Vygotsky's sociocultural theory draws attention to the role of social interaction in cognitive development. Although independent learning is often associated with individual activity, interaction with teachers and classmates can contribute significantly to the development of independent reasoning. Through dialogue, discussion, and collaborative problem-solving, students gradually develop the ability to regulate their own thinking.

Another important theoretical contribution is Bloom's taxonomy of educational objectives. Its cognitive categories, particularly analyzing, evaluating, and creating, provide a useful framework for designing tasks that go beyond memorization and comprehension.

These theoretical perspectives demonstrate that independent thinking is not an isolated ability. It develops through the interaction of cognitive processes, social experiences, educational activities, and individual reflection.

Pedagogical Conditions for Developing Independent Thinking

The successful development of independent thinking requires a learning environment in which students have opportunities to express their ideas, investigate problems, and take responsibility for their educational activities. One of the most important conditions is the establishment of a student-centered learning environment. In such an environment, the teacher considers students' individual abilities, interests, and learning needs. Students are encouraged to participate actively, ask questions, and contribute their own interpretations. Another essential condition is the creation of a psychologically supportive classroom atmosphere. Some students hesitate to express their opinions because they are afraid of making mistakes or receiving negative comments. Consequently, teachers should promote respectful communication and demonstrate that mistakes can become valuable opportunities for learning.

The content of educational tasks is also important. Activities that require students to reproduce textbook information may develop memory but do not always stimulate independent reasoning. Therefore, teachers should regularly include open-ended questions, analytical assignments, practical problems, and creative tasks in their lessons.Furthermore, independent thinking develops more effectively when students are given sufficient time to reflect on their learning. Reflection enables them to identify what they have understood, recognize difficulties, and reconsider their conclusions.

The following pedagogical conditions are particularly significant:

- A supportive and democratic classroom environment.
- Opportunities for independent research and investigation.
- Tasks that encourage analysis and evaluation.
- Respect for different opinions and interpretations.
- Regular reflection and constructive feedback.
- Appropriate consideration of individual learning differences.

Effective Teaching Methods and Strategies

The selection of teaching methods has a direct influence on students' opportunities to develop independent thinking. Several approaches are especially relevant to general secondary education.

1. Problem-Based Learning

Problem-based learning begins with a question or situation that requires students to investigate possible solutions. Instead of immediately explaining the correct answer, the teacher encourages learners to identify the problem, collect relevant information, examine evidence, and formulate conclusions. For example, during a natural science lesson, students may be asked to explain why certain environmental problems occur in their local community. They can investigate possible causes, compare available information, and suggest practical solutions. This approach develops analytical reasoning, intellectual curiosity, and the ability to apply theoretical knowledge to real-life situations.

2. Project-Based Learning

Project-based learning provides opportunities for students to work independently or collaboratively on meaningful educational tasks. Projects may involve conducting research, preparing presentations, creating educational materials, or investigating social and environmental issues. The main educational value of this approach lies in the learning process itself. Students must determine their objectives, organize information, distribute responsibilities, and present the results of their work.Project activities also encourage creativity, responsibility, communication, and self-management.

3. Discussion and Debate

Classroom discussions and debates are effective tools for developing independent judgment. When students discuss a particular issue, they encounter different opinions and learn to evaluate arguments. For example, a teacher may introduce the question: "Does the widespread use of digital technology always improve the quality of education?" Students can consider both advantages and disadvantages, support their arguments with examples, and respond to alternative viewpoints. Such activities help learners understand that complex questions may have different possible interpretations and that conclusions should be supported by logical reasoning.

4. Inquiry-Based Learning

Inquiry-based learning encourages students to investigate questions independently. It involves observation, questioning, information gathering, analysis, and interpretation. Teachers can use this approach in various subjects. In history, students may compare different historical accounts. In biology, they may formulate hypotheses and interpret experimental observations. In literature, they may analyze characters' decisions and propose alternative interpretations of events.This method develops curiosity and helps students understand knowledge as something that can be investigated rather than simply memorized.

5. Reflective Learning

Reflection is another important element of independent thinking. Students should have opportunities to evaluate their own progress and consider the effectiveness of their learning strategies.

Teachers can introduce short reflective activities at the end of lessons. For example, students may answer questions such as:

- What new information did I learn today?
- Which question was the most challenging?
- What evidence supports my conclusion?
- What would I investigate further?

These activities gradually develop metacognitive awareness and encourage students to become more responsible for their learning.

The Role of Teachers in Promoting Intellectual Independence

The teacher's role in developing independent thinking extends beyond the presentation of subject knowledge. Teachers are responsible for organizing learning experiences that stimulate intellectual activity and encourage students to become independent learners.

An effective teacher should act as a facilitator of learning. This means guiding students toward understanding rather than providing answers to every question immediately. Asking thought-provoking questions, encouraging alternative solutions, and organizing meaningful discussions are essential elements of this approach.For instance, instead of asking students only to reproduce information from a textbook, teachers may ask them to explain why a particular event occurred, compare two different approaches, or suggest possible solutions to a practical problem.Assessment practices should also support independent thinking. If students are evaluated exclusively on the accuracy of memorized information, they may focus primarily on reproducing textbook content. In contrast, assessment criteria that include reasoning, argumentation, creativity, and the ability to apply knowledge can encourage deeper learning.

Constructive feedback is equally important. Teachers should explain not only whether an answer is correct but also how students can improve their reasoning and strengthen their arguments.

The Use of Digital Technologies in Developing Independent Thinking

Digital technologies have significantly expanded the possibilities of independent learning. Students can access electronic libraries, educational platforms, digital simulations, online databases, and interactive learning resources.These tools can support independent investigation and allow learners to explore subjects beyond the limits of traditional textbooks. However, access to large amounts of information does not automatically result in the development of independent thinking.

Students need to learn how to evaluate the reliability of digital sources, identify misleading information, compare different interpretations, and use information ethically.Artificial intelligence tools also create new educational opportunities and challenges. They can assist students in exploring unfamiliar concepts, generating research questions, and receiving explanations. Nevertheless, excessive dependence on automatically generated answers may reduce opportunities for independent reasoning.

Therefore, teachers should establish clear educational guidelines for the responsible use of digital technologies. Students should be encouraged to use technology as a resource for investigation and verification rather than as a substitute for their own intellectual effort.

Practical Recommendations for General Secondary Schools

Based on the theoretical analysis, several practical recommendations can be proposed for improving the development of independent thinking in general secondary education.

First, teachers should include more analytical and open-ended questions in everyday classroom activities. Such questions encourage students to explain their reasoning rather than simply provide short factual answers.

Second, educational tasks should be connected with real-life situations. When students recognize the practical relevance of what they are learning, they become more interested in investigating problems and finding solutions.

Third, schools should create opportunities for individual research, subject-related projects, classroom debates, and interdisciplinary activities.

Fourth, teachers should gradually develop students' information literacy. Learners need to understand how to search for relevant information, evaluate its reliability, and use appropriate evidence to support their conclusions.

Finally, assessment should recognize not only the final answer but also the thinking process through which students arrive at that answer.The implementation of these recommendations can contribute to the development of a more active, reflective, and intellectually stimulating educational environment.

Conclusion

The development of independent thinking is an essential component of improving the quality of general secondary education. In modern society, students need intellectual abilities that enable them to analyze information, evaluate different viewpoints, solve problems, and make responsible decisions.

The theoretical perspectives of Dewey, Piaget, and Vygotsky demonstrate that independent thinking develops through active learning, personal experience, social interaction, and reflection. These ideas provide a valuable foundation for improving contemporary teaching practices.

The analysis suggests that problem-based learning, project activities, classroom discussions, inquiry-based instruction, and reflective practices can create favorable conditions for students' intellectual development. At the same time, the teacher's ability to establish a supportive learning environment and encourage students' initiative remains particularly important.

It can therefore be concluded that developing independent thinking should be considered a systematic and continuous educational objective rather than an occasional classroom activity. General secondary schools should provide learners with meaningful opportunities to investigate, question, analyze, and create. Such an

approach will contribute to preparing intellectually independent, responsible, and creative individuals who can successfully respond to the challenges of contemporary society.

References

Dewey, J. (1933). How We Think: A Restatement of the Relation of Reflective Thinking to the Educative Process. D. C. Heath and Company.

Piaget, J. (1972). The Psychology of the Child. Basic Books.

Vygotsky, L. S. (1978). Mind in Society: The Development of Higher Psychological Processes. Harvard University Press.

Bloom, B. S. (Ed.). (1956). Taxonomy of Educational Objectives: The Classification of Educational Goals. Handbook I: Cognitive Domain. David McKay.

Facione, P. A. (1990). Critical Thinking: A Statement of Expert Consensus for Purposes of Educational Assessment and Instruction. The California Academic Press.

Ennis, R. H. (2011). The nature of critical thinking: An outline of critical thinking dispositions and abilities. University of Illinois.

Bruner, J. S. (1961). The act of discovery. Harvard Educational Review, 31(1), 21–32.

Zimmerman, B. J. (2002). Becoming a self-regulated learner: An overview. Theory Into Practice, 41(2), 64–70.

OECD. (2019). OECD Future of Education and Skills 2030: OECD Learning Compass 2030. OECD.

UNESCO. (2021). Reimagining Our Futures Together: A New Social Contract for Education. UNESCO.